UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,991	12/17/2003	Arthur H. Laflamme JR.	071469-0306511 (PC6025A)	6448

7590 04/01/2009

James Klekotka
Suite 10
4350 W. Chandler Blvd.
Chandler, AZ 85226

EXAMINER	
MOORE, KARLA A	

ART UNIT	PAPER NUMBER
1792	

MAIL DATE	DELIVERY MODE
04/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/736,991	LAFLAMME ET AL.	
	Examiner	Art Unit	
	KARLA MOORE	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2009*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30,38-41,43 and 44* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,9,13,17,20,22,28,30,36-38 and 43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 4-6,8,10-12,14-16,18,21,23-26,29,39-41 and 44.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 7, 9, 17, 19-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okase (US 6,228,173) in view of Oehrlein (US 5,798,016), Carpenter (US 2003/0159780 A1), Morad (6,276,072) and Strodtbeck (5,885,353).

3. With respect to Claim 1, Okase discloses a reduced maintenance processing system (Figure 1, 1) for treating a substrate substantially as claimed and comprising: a chemical treatment system/chamber (Fig. 1, 4 and 6; shown in more detail in Figure 14) for chemically altering exposed surface layers on the substrate comprising a temperature controlled chemical treatment chamber (chamber 132 is heated using heating room 162); and a thermal treatment system (Fig.1, 8 and 10; shown in more detail in Figure 2) for thermally treating the chemically altered surface layers on the substrate, the thermal treatment system comprising a temperature controlled thermal treatment chamber (chamber 24 is heated using radiating mechanism 90). Okase also teaches the chemical treatment system and the thermal treatment system each further

comprise a temperature controlled substrate holder, (Fig. 2 Item 36) and (Fig 14, 142), respectively. Additionally, each of the chemical treatment system and the thermal treatment system further comprise a lift pin assembly, (Fig. 2 , 62) and (Fig 14, multiple part numbers, e.g. 148, 150-151, 156 and 158), respectively.

4. However, Okase fails to disclose either or both of the chemical treatment system/chamber or the thermal treatment system/chamber comprising a protective barrier layer formed on at least a portion of an inner surface thereof.

5. Oehrlein teaches providing a film of Al_2O_3, Y_2O_3 or Sc_2O_3 on an inner wall surface of a chamber and on exposed surfaces of members within the chamber for the purpose of providing resistance to chemical attack and/or ability to prevent particles which may flake off (for example, see column 5, rows 33-67).

6. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have provided a protective barrier layer of Al_2O_3, Y_2O_3 or Sc_2O_3 on at least a portion of an inner surface of either or both of the chemical treatment system/chamber and the thermal treatment system/chamber in Okase in order to provide resistance to chemical attack and the ability to prevent particles from flaking off as taught by Oehrlein.

7. Okase and Oehrlein disclose the processing system substantially as claimed and as described above.

8. However, Okase and Oehrlein fail to explicitly teach a first insulation assembly coupled between the thermal treatment system and the chemical treatment system, the

first thermal insulation assembly defining a common opening configured for transferring the substrate between the chemical treatment chamber and the temperature controlled thermal treatment chamber and a second thermal insulation assembly coupled to the thermal treatment system, the second thermal insulation assembly having a transfer opening configured for transferring the substrate therethrough.

9. Carpenter teaches the use of temperature isolating structures (Figure 1, 15) comprising a thermally insulative mass of material received between a transfer chamber (12) and chambers (14) attached thereto in a cluster tool for the purpose of more effectively reducing heat transfer between the chambers than would otherwise occur in the absence of said mass of material (abstract). Note: If the temperature isolating structures were provided in the apparatus of Okase at locations around the transfer chamber, a common first thermal insulation assembly could be located at gate valves G1 and/or G2, as claimed, for example to introduce substrates into the cluster tool. Although, Carpenter does not explicitly teach that the temperature isolating structures can be received at locations where the substrate enters and exits the overall system, one of ordinary skill in the art exercising ordinary common sense, creativity and logic would readily envision such a scenario for the purpose providing further thermal control over an entire processing system. A second thermal insulation assembly could be located at either of the gate valves G6 or G7 leading to the thermal treatment systems 8 and 10. Further, the courts have ruled that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the

primary reference; nor is it that the claimed invention must be expressly suggested in anyone or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

10. It would have been obvious to one of ordinary skill in the time the Applicant's invention was made to have provided a first insulation assembly coupled between the thermal treatment system and the chemical treatment system, the first thermal insulation assembly defining a common opening configured for transferring the substrate between the chemical treatment chamber and the temperature controlled thermal treatment chamber and a second thermal insulation assembly coupled to the thermal treatment system, the second thermal insulation assembly having a transfer opening configured for transferring the substrate therethrough in Okase and Oehrlein in order to more effectively reduce heat transfer between the chambers than would otherwise occur in the absence of said mass of material as taught by Carpenter.

11. With respect to the specific materials used during processing in the claimed apparatus, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

12. Okase, Oehrlein and Carpenter disclose the processing system substantially as claimed and as described above.

13. However, Okase, Oehrlein and Carpenter fail to disclose the thermal treatment system comprising a lifter assembly (separate from a lift pin assembly).

14. Morad disclose the use of a lifter assembly in a thermal treatment apparatus for the purpose of transferring a substrate between multiple processing positions in a single chamber (abstract).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a lifter assembly in the thermal treatment apparatus of Okase, Oehrlein and Carpenter in order to transfer a substrate between multiple processing positions in a single chamber as taught by Morad.

16. Okase, Oehrlein, Carpenter and Morad disclose the processing system substantially as claimed.

17. However, Okase, Oehrlein, Carpenter and Morad fail to disclose a substrate detection system.

18. Strodtbeck discloses the use of a sensor for the purpose of detecting the presence of a material (substrate) and providing a signal to a computer controller (abstract).

19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a sensor in the system of Okase, Oehrlein, Carpenter and Morad in order to detect the presence of a material (substrate) and provide a signal to a computer controller as taught by Strodtbeck.

20. With respect to claim 2, in line with the teachings of Oehrlein as described above, it would have been obvious of ordinary skill in the art at the time the Applicant's was made to have provided a protective coating on any part of the first and/or the second thermal insulation assemblies that may come in contact with processing conditions, either purposefully or inadvertently. There is always a chance of inadvertent exposure in a cluster tool.

21. With respect to claims 7 and 17: described above is the teaching of the protective barrier on the interior surface of the chemical treatment chamber and the temperature controlled thermal treatment chamber comprises at least one of Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3, and DyO_3.

22. With respect to claims 9 and 19, as described above, Okase teaches the chemical treatment system and the thermal treatment system each further comprise a temperature controlled substrate holder, (Fig. 2 Item 36) and (Fig 14, 142), respectively. The teachings of Oehrlein, described above, provide a teaching of providing a protective barrier coating on an exposed portion thereof, as claimed.

23. With respect to Claims 20 and 22: as described above the protective barrier of Oehrlein can be formed on any exposed surface that might need protection. This would include the surface of a gate valve assembly. Also as described above, per Oehrlein, the protective barrier layer would comprise at least one of Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3, and DyO_3.

24. Claims 3, 13, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okase, Oehrlein and Carpenter as applied to claims 1-2, 7, 9, 17, 19-20 and 22 above, and further in view of Carducci (US 2003/0037880 A1).

25. Okase, Oehrlein and Carpenter disclose a processing system substantially as claimed and as described above and including a temperature controlled substrate holder mounted within the chemical treatment chamber and the thermal treatment system, each having a protective layer formed on an exposed surface. See above. Also disclosed are a vacuum pumping system coupled to the chemical treatment chamber (column 13, row 65 through column 14, row 7) and a gas distribution plate (182) comprising a plurality of gas injection orifices (188). As the gas distribution plate is clearly exposed to processing conditions, it would have been obvious to form a protective barrier layer on its exposed surface, as well as the orifices therein, per the teachings of Oehrlein.

26. However, Okase, Oehrlein and Carpenter fail to explicitly disclose that the gas distribution plate is coupled to a temperature controlled gas distribution system for introducing a process gas into the chemical treatment chamber; and the processing system further comprises a control system coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate

holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate.

27. Carducci teaches a gas distribution plate is coupled to a temperature controlled gas distribution system (multiple part numbers, e.g. Figure 1, 102, 103, 105) for introducing a process gas into a chemical treatment chamber (100); and the processing system further comprises a control system (Figure 1, 140, paragraph 68) coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate in order to facilitate control of the chamber (paragraph 73).

28. At the time of invention, it would have been obvious to a person of ordinary skill in the art to have provided the gas distribution plate coupled to a temperature controlled gas distribution system for introducing a process gas into the chemical treatment chamber; and the processing system further comprises a control system coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a

chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate in Okase, Oehrlein and Carpenter in order to facilitate control of the chamber as taught by Carducci.

29. With respect to claims 3, 36 and 37, each of the recitations contained therein is addressed in the descriptions and teachings of the above identified prior art.

30. Claims 38 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okase, Oehrlein, Carpenter Morad and Strodtbeck as applied to claims 1-2, 7, 9, 17, 19-20 and 22 above, and further in view of Carducci (US 2003/0037880 A1) and U.S. Patent No. 5,223,113 to Kaneko et al.

31. Okase, Oehrlein and Carpenter disclose a processing system substantially as claimed and as described above and including a temperature controlled substrate holder mounted within the chemical treatment chamber and the thermal treatment system, each having a protective layer formed on an exposed surface. See above. Also disclosed in Okase are a vacuum pumping system coupled to the chemical treatment chamber (column 5, rows 39-45 and column 13, row 65 through column 14, row 7) and a gas distribution plate (182, also see 72) comprising a plurality of gas injection orifices (188). As the gas distribution plate is clearly exposed to processing conditions, it would have been obvious to form a protective barrier layer on its exposed surface, as well as the orifices therein, per the teachings of Oehrlein. Okase also

teaches the chemical treatment system and the thermal treatment system each further comprise a temperature controlled substrate holder, (Fig. 2 Item 36) and (Fig 14, 142), respectively. Additionally, each of the chemical treatment system and the thermal treatment system further comprise a lift pin assembly, (Fig. 2 , 62) and (Fig 14, multiple part numbers, e.g. 148, 150-151, 156 and 158), respectively.

32. However, Okase, Oehrlein and Carpenter fail to explicitly disclose that the gas distribution plate is coupled to a temperature controlled gas distribution system for introducing a process gas into the chemical treatment chamber; and the processing system further comprises a control system coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate.

33. Carducci teaches a gas distribution plate is coupled to a temperature controlled gas distribution system (multiple part numbers, e.g. Figure 1, 102, 103, 105) for introducing a process gas into a chemical treatment chamber (100); and the processing system further comprises a control system (Figure 1, 140, paragraph 68) coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas

distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate in order to facilitate control of the chamber (paragraph 73).

34. At the time of invention, it would have been obvious to a person of ordinary skill in the art to have provided the gas distribution plate coupled to a temperature controlled gas distribution system for introducing a process gas into the chemical treatment chamber; and the processing system further comprises a control system coupled to the chemical treatment system and the thermal treatment system, and configured to control at least one of a chemical treatment chamber temperature, a chemical treatment gas distribution system temperature, a chemical treatment substrate holder temperature, a chemical treatment substrate temperature, a chemical treatment processing pressure, a chemical treatment gas flow rate, a thermal treatment chamber temperature, a thermal treatment substrate holder temperature, a thermal treatment substrate temperature, a thermal treatment processing pressure, and a thermal treatment gas flow rate in Okase, Oehrlein and Carpenter in order to facilitate control of the chamber as taught by Carducci.

35. Okase, Oehrlein, Carpenter and Carducci disclose the thermal treatment system substantially as claimed and as described above.

36. However, Okase, Oehrlein, Carpenter and Carducci fail to explicitly disclose the temperature controlled substrate holder comprises a temperature control component, an underlying mating component and a thermal insulation gaps is configured to provide additional thermal insulation between the temperature control component and the underlying mating component.

37. Kaneko et al. disclose the provision of a temperature controlled substrate holder in Figure 2 which comprises a temperature control component (52-54), an underlying mating component (32) and a thermal insulation gap (56) configured to provide additional thermal insulation between the temperature control component and the underlying mating component for the purpose of independently controlling the temperature of the substrate holder and a substrate provide thereon (column 2, row 49-53, column 4, rows 1-68 and column 5, rows 13-14).

38. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a temperature controlled substrate holder comprising a temperature control component , an underlying mating component and a thermal insulation gap configured to provide additional thermal insulation between the temperature control component and the underlying mating component in Okase, Oehrlein, Carpenter and Carducci in order to independently control the temperature of the substrate holder and a substrate provide thereon as taught by Kaneko et al.

39. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable Okase, Oehrlein and Carpenter as applied to claims 1-2, 7, 9, 17, 19-20 and 22 above, and further in view of Perlov (US 2002/0170672 A1).

40. Okase, Oehrlein and Carpenter disclose a processing system substantially as claimed and as described above.

41. However, Okase, Oehrlein and Carpenter do not expressly state the substrate lifter assembly comprises a blade having three or more tabs for receiving the substrate and having a protective barrier formed on at least a portion of an exposed surface, and a drive system for vertically translating the substrate between the substrate holder and a transfer plane.

42. Perlov teaches the substrate lifter assembly comprises a blade having three or more tabs (Fig. 1 Items 25a-c) for receiving the substrate and having a protective barrier formed on at least a portion of an exposed surface (Paragraph 27 Lines 1-4), and a drive system for vertically translating the substrate between the substrate holder and a transfer plane (Fig 2 Item 24).

43. At the time of invention, it would have been obvious to a person of ordinary skill in the art to form the apparatus disclosed in Okase, Oehrlein and Carpenter including the substrate lifter assembly comprises a blade having three or more tabs for receiving the substrate and having a protective barrier formed on at least a portion of an exposed surface, and a drive system for vertically translating the substrate between the substrate holder and a transfer plane in view of the teaching of Perlov. The suggestion or

motivation for doing so would have been to provide a lift that does not produce particles or scratch a substrate during contact (Paragraph 27 Lines 1-5).

44. With respect to claim 30, it is also noted that Perlov teaches a processing system, wherein a protective barrier is formed on exposed surfaces (Paragraph 27 Lines 1-5). It would have also been obvious to one of ordinary skill in the art to utilize the teachings of Oehrlein, which state that it is beneficial to provide protective barrier layers comprising the claimed materials on exposed surfaces of parts, such as the blade.

Response to Arguments

45. Applicant's arguments regarding the claims as previously presented and rejected 6 January 2009 have been considered but are moot in view of the new ground(s) of rejection and/or are not persuasive. Applicant's arguments with respect to newly amended recitations of the claims have been considered but are moot in view of the new ground(s) of rejection detailed above. Oehrlein, Morad and Strodtbeck are newly relied upon prior art references.

46. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, wherein Applicant's specification is allegedly used as a template, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include

knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The prior art relied upon above clearly demonstrates the level of one of ordinary skill in the art that would have rendered the claimed invention obvious.

47. Applicant's arguments also allege improper fact finding by the Examiner; however, specific instances are not addressed. Instead, a basic outline of the previous office action has been set forth. Applicant's has made it impossible for the Examiner to fairly respond to this allegation.

48. Regarding, Applicant's argument that Examiner has not considered Applicant's invention as a whole, Examiner disagrees and again points out that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

49. In the instant case, the claimed invention would have been obvious to one of ordinary skill in the art in possession of the relied upon prior art and capable of exercising ordinary creativity, common sense and logic as set forth above.

Conclusion

50. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLA MOORE whose telephone number is (571)272-1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karla Moore/
Primary Examiner, Art Unit 1792